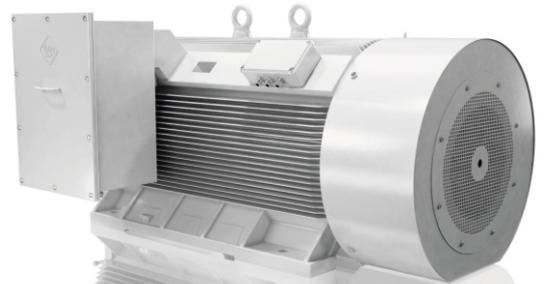
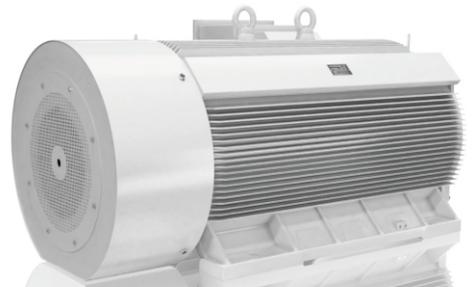
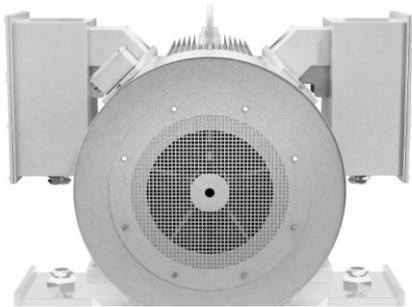


High voltage squirrel cage induction motors
Series: H17R



SOLUTIONS FOR INDUSTRY



VYBO Electric

high voltage induction motors

We are a medium-sized company specialized in electric drive solutions.

Our portfolio includes squirrel cage motors, and slip ring motors as well as direct current motors - from standard low voltage motors to individually designed single pieces of up to 20 MW.

Qualified engineering, highly skilled staff, and modern facilities with up-to-date testing equipment form the basis for the reliable work that countless customers around the world have come to appreciate. Go ahead and put our performance, flexibility and speed to the test.



More than 10 000m² of manufactory plant

High-voltage motors of all voltages from 2 kV to 13,8 kV

- » with squirrel-cage rotor
- » with slip-ring rotor
- » different mountings available DC motors up to approx. 2,000kW
- » different types of cooling
- » different types of mounting
- » voltages from 220 to 900 V
- » with different types of speed monitoring systems Slip-ring motors for low voltage
- » for 230, 400, 500 and 690 V stator voltage
- » different types of mounting Three-phase transformers
- » cast resin types
- » dry types
- » oil cooled types
- » wide range of voltages and power available



THE NEW H17R SERIES - HIGH PERFORMANCE, LOW PRICE

The significance of cost effectiveness and profitability, the global need for standard high voltage motors, and the steady increase in sales quantities - these were the main reasons for developing the new H17R series

Motors of the H17R series are deployed in the most diverse sectors, including the oil, gas, paper, chemical, or steel industries. They are used to drive pumps, compressors, blowers, refiners, mills, among other things.

The new H17R series redefines the benchmarks for all standard deployment scenarios!

FEATURES

- » high power efficiency and low operating costs
- » reliable and durable bearing construction
- » great vibration values and low maintenance costs
- » windings in temperature class F (VPI)
- » reliability and long life expectancy
- » high load capacity
- » low noise emissions
- » customized executions

STANDARDS

The motors comply with the latest European standards EN60034 and IEC34 standards.

CONSTRUCTION

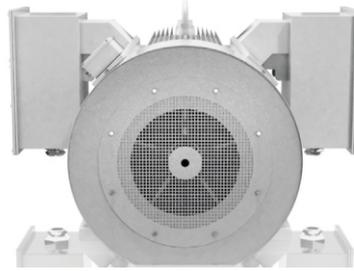
The motors have a torsionally rigid grey cast iron housing with moulded legs. The housing design guarantees optimal cooling and ensures a high self-cleaning.

MOUNTING

The motors are available as type IM B3 / V1. Special versions, such as IM B35, are available upon request.

PROTECTION

The motors feature the IP 55 degree of protection. Higher degrees of protection are available upon request.



COOLING

The motors featured the IC 411 cooling type, where the heat loss generated inside the motor is transmitted to the motor housing and dissipated by the cooling air that the external fan moves across the cooling fins. Two-pole motors are manufactured with an external unidirectional fan, whereas all other motors principally come with bi-directional external fans.

The internal air circulation is bi-directional. For special applications, such as the operation of a frequency converter, the motors can be delivered with separate ventilation of the IC 416 cooling type.

INSULATION

The motor winding, which is principally tropicalised, conforms with temperature class F, and is manufactured using The CPI (Vacuum Pressure Impregnation) method.

The thermal stress of the motors is subject to the temperature class B, resulting in being capable of withstanding the highest mechanical stress, so that a restart against a residual field of 100% following a power failure is possible any time.

BEARINGS

The motors are laid out with grease-lubricated rolling contact bearings, and include a re-lubricating device and grease relief.

Upon request, the motors can be delivered with roller bearings (reinforced rolling-contact bearings) on the drive end in order to be able to accommodate the characteristically radial forces occasioned by belt drives. Executions with self or forced lubricated sleeve bearings are available upon request. We use exclusively high-end bearings and lubricants.

VIBRATION SEVERITY

Even as basic model, the motors meet the requirements of vibration severity grade N (normal).

The vibration is measured when the motor is idling at nominal voltage and frequency.

The balance quality grade of the motors is principally "half-key."



NOISE

Even the standard model has an optimized design to maintain a low noise level. The sound pressure levels during line operation (IEC tolerance: +3 dB (A)) are stated in the datasheets.

The noise test is conducted when the motor is idling at nominal voltage and frequency.

PAINT FINISH

The standard paint finish conforms to the climatic category "moderate." A large number of special paint finishes is available upon request. The standard colour is RAL 7030 "stone grey."

Naturally, special colours are available upon request.

NOMINAL VOLTAGE

The motors are available for the following nominal voltage ratings:

50 Hz: 2000 / 3000 / 3300 / 5000 / 5500 / 6000 / 6300 / 6600 / 10000 / 10500 / 11000 V

60 Hz: 4160 V / 13800 V

The permissible voltage tolerance equals $\pm 5\%$.

Special voltage and deviating voltage tolerances are available upon request.

AMBIENT TEMPERATURE

The motors are designed for operation with an ambient temperature between $-20\text{ }^{\circ}\text{C}$ and $+40\text{ }^{\circ}\text{C}$.

In case of higher ambient temperatures up to $+60\text{ }^{\circ}\text{C}$ the power output will have to be reduced.

For ambient temperatures as low as $-30\text{ }^{\circ}\text{C}$ special steel shafts and heavy-duty space heaters are available upon request.

Ambient temperature [$^{\circ}\text{C}$]	Output [%]
40	100
45	95
50	90
55	85
60	90

TYPE RATING

The type rating refers to the S1 operating type (continuous operation) at nominal voltage and frequency an ambient temperature of 40 °C and an installation site elevation of 1,000 m above sea level.

Deviations in ambient temperature and site elevation are subject to lower unit ratings, as listed below:

Installation site elevation [m]	Output [%]
1000	100
1500	96
2000	92
2500	88
3000	84
3500	80
4000	76

OVERLOAD CAPABILITY

When operating at nominal voltage, the motors tolerate up to two minutes of overload at 1.5 times the nominal current.

TERMINAL BOXES

Depending on the respective customer specs, the motors are delivered with terminal boxes on the left-hand or right-hand side.

In the standard design, a high-end ROXTEC cable entry for a multi-conductor cable with an outside diameter of 30 to 70 mm is integrated into the removable cable entry of the terminal box that simultaneously serves as strain relief purpose.

Upon request, we will gladly send you detailed technical information. Naturally, we also stock any other type of cable gland, as well as undrilled cable entry plates made of various materials.

Special terminal boxes (e.g. including phase separation, special dimensions, etc.) or single-phase plug-and-socket systems are available upon request.

The terminal boxes can generally be rotated by 4 x 90°.

MOTOR PROTECTION

The motors are principally fitted with temperature monitoring for winding and bearings, as well as with mechanical SPM measuring heads for capturing the vibration values:

- » 6 x Pt100 resistance thermometer (RTD) inside the stator winding
- » 2 x Pt100 resistance thermometer (RTD) inside the bearings
- » 2 x SPM measuring heads

The terminal connections of the resistance thermometers are located inside a separate terminal box. Also, a wide range of additional sensors and transmitters is available upon request.

ACCESSORIES

The motors are principally fitted with a space heater (230 V / 1 ~), including a separate terminal box. Options include space heaters with deviating nominal voltage.

Also, a wide range of additional accessories is available upon request.

TESTS

The motors are subjected to a standard factory test that includes the following test stages:

- » winding resistance measurement
- » insulation resistance test
- » no-load test
- » short-circuit test
- » direction-of-rotation test
- » high-voltage test
- » vibration magnitude measurement
- » performance test of accessories
- » shaft voltage measurement
- » visual acceptance
- » noise measurement

For every motor, a corresponding test report is compiled ahead of delivery and enclosed with the documentation.

Additional testing, including e. g. a full-load test, a temperature-rise test, a shock pulse test, a dissipation-factor measurement, a polarisation index measurement, etc., can be conducted upon request.

2 TO 6.6 kV (2 POLES)

Class H17R

Standard Design

Mounting IM B3 / Protection IP 55 / Cooling IC 411 / 50 Hz / 2 poles / Insulation class F / Heating class B / Ambient Temperature 40 °C

Type	Power	Speed	Current 6 kV	Current 3,3 kV	Efficiency	Power factor	Starting current	Starting torque	Max. torque	Inertia J	Weight	Noise level
	kW	min ⁻¹	A	A	%		I _s /I _N	M _s /M _N	M _k /M _N	kgm ²	kg	dB(A)
H17R315-02	200	2980	24	44	94,5	0,84	6,6	1,0	2,5	2	1800	88
H17R315-02	220	2980	27	48	94,7	0,84	6,6	1,0	2,6	2	1850	88
H17R315-02	250	2980	30	55	94,9	0,84	6,7	1,0	2,6	3	1900	88
H17R315-02	280	2980	33	60	95,2	0,86	6,7	1,1	2,7	3	2000	89
H17R315-02	315	2980	37	67	95,5	0,86	6,8	1,1	2,7	3	2100	89
H17R355-02	355	2980	42	75	95,7	0,86	6,6	1,1	2,5	5	2500	90
H17R355-02	400	2980	47	85	95,8	0,86	6,7	1,1	2,5	5	2550	90
H17R355-02	450	2980	53	95	95,9	0,86	6,8	1,1	2,6	6	2600	91
H17R355-02	500	2980	58	106	96,0	0,86	6,8	1,1	2,6	6	2700	91
H17R400-02	560	2980	65	118	95,8	0,87	6,7	1,0	2,7	8	3400	91
H17R400-02	630	2980	72	130	96,0	0,88	6,8	1,0	2,7	8	3500	92
H17R400-02	710	2980	80	145	96,2	0,89	6,9	1,0	2,8	9	3600	92
H17R450-02	800	2985	91	166	96,0	0,88	6,6	0,7	2,5	16	4600	92
H17R450-02	900	2985	102	186	96,1	0,88	6,7	0,7	2,5	18	4900	92
H17R450-02	1000	2985	114	207	96,2	0,88	6,8	0,8	2,5	20	5100	93
H17R450-02	1120	2985	127	231	96,3	0,88	6,9	0,8	2,6	22	5400	93



2 TO 6.6 kV (4 POLES)

Class H17R

Standard Design

Mounting IM B3 / Protection IP 55 / Cooling IC 411 / 50 Hz / 4 poles / Insulation class F / Heating class B / Ambient Temperature 40 °C

Type	Power	Speed	Current 6 kV	Current 3,3 kV	Efficiency	Power factor	Starting current	Starting torque	Max. torque	Inertia J	Weight	Noise level
	kW	min ⁻¹	A	A	%		I _s /I _N	M _s /M _N	M _k /M _N	kgm ²	kg	dB(A)
H17R315-04	200	1485	24	44	93,9	0,84	6,5	1,0	2,4	6	1800	85
H17R315-04	220	1485	27	49	94,1	0,84	6,5	1,0	2,4	7	1850	85
H17R315-04	250	1485	30	55	94,3	0,84	6,5	1,0	2,5	7	1900	85
H17R315-04	280	1485	33	60	94,5	0,86	6,7	1,1	2,5	8	2000	86
H17R315-04	315	1485	38	69	94,6	0,85	6,7	1,1	2,5	8	2100	86
H17R355-04	315	1490	38	69	94,5	0,85	6,9	1,2	2,8	10	2600	87
H17R355-04	355	1490	42	77	94,8	0,85	6,9	1,2	2,7	12	2750	88
H17R355-04	400	1490	48	87	95,0	0,85	6,8	1,2	2,7	14	2900	88
H17R355-04	450	1490	54	97	95,2	0,85	6,8	1,3	2,7	15	3050	88
H17R355-04	500	1490	58	105	95,4	0,87	6,8	1,3	2,7	16	3200	88
H17R400-04	560	1490	65	119	96,1	0,86	6,8	1,0	2,9	18	3700	89
H17R400-04	630	1490	74	134	95,5	0,86	6,8	1,0	2,8	19	3900	90
H17R400-04	710	1490	82	149	95,8	0,87	6,9	1,1	2,8	20	4100	90
H17R450-04	800	1490	94	170	95,7	0,86	6,5	1,0	2,8	31	5000	91
H17R450-04	900	1490	104	188	96,1	0,87	6,6	1,0	2,8	32	5300	91
H17R450-04	1000	1490	117	212	95,9	0,86	6,5	1,0	2,8	34	5700	91
H17R450-04	1120	1490	131	237	96,0	0,86	6,5	1,0	2,8	37	6000	91
H17R500-04	1250	1490	141	257	96,8	0,88	6,7	0,8	2,7	53	7200	92
H17R500-04	1400	1490	161	293	96,2	0,87	6,5	0,8	2,0	58	7400	92
H17R500-04	1600	1490	182	331	96,2	0,88	6,5	0,8	3,0	62	7700	92
H17R560-04	1800	1490	206	375	96,5	0,87	6,5	0,7	2,0	78	8600	93
H17R560-04	2000	1490	227	413	96,3	0,88	6,8	0,7	2,0	82	9000	93

2 TO 6.6 kV (6 POLES)

Class H17R

Standard Design

Mounting IM B3 / Protection IP 55 / Cooling IC 411 / 50 Hz / 6 poles / Insulation class F / Heating class B / Ambient Temperature 40 °C

Type	Power	Speed	Current 6 kV	Current 3,3 kV	Efficiency	Power factor	Starting current	Starting torque	Max. torque	Inertia J	Weight	Noise level
	kW	min ⁻¹	A	A	%		I _Δ /I _N	M _Δ /M _N	M _K /M _N	kgm ²	kg	dB(A)
H17R315-06	185	990	24	43	93,5	0,80	5,9	0,8	2,3	7	2000	80
H17R315-06	200	990	25	46	93,6	0,81	5,9	0,9	2,4	8	2100	80
H17R315-06	220	990	28	51	93,8	0,81	6,0	1,0	2,4	9	2200	81
H17R355-06	250	990	31	57	93,9	0,82	5,8	0,8	2,4	10	3000	81
H17R355-06	380	990	35	63	94,1	0,82	5,8	0,8	2,4	12	3100	81
H17R355-06	315	990	39	70	94,3	0,83	5,9	0,9	2,5	15	3200	82
H17R355-06	355	990	44	79	94,5	0,83	6,0	0,9	2,5	18	3400	82
H17R400-06	400	990	48	88	95,9	0,83	5,9	0,8	2,5	20	3700	83
H17R400-06	450	990	54	98	95,9	0,84	6,0	0,8	2,5	24	3900	83
H17R400-06	500	990	60	108	96,1	0,84	6,0	0,9	2,6	28	4100	83
H17R450-06	560	990	67	121	96,1	0,84	6,1	0,8	2,2	35	5500	85
H17R450-06	630	990	75	136	96,2	0,84	6,1	0,8	2,3	45	5700	86
H17R450-06	710	990	85	154	96,2	0,84	6,2	0,8	2,3	50	5900	87
H17R450-06	800	990	95	173	96,4	0,84	6,2	0,8	2,4	58	6100	87
H17R500-06	900	990	106	192	96,3	0,85	6,0	0,7	2,3	63	7100	88
H17R500-06	1000	990	118	214	96,3	0,85	6,0	0,7	2,3	72	7300	88
H17R500-06	1120	990	130	236	96,4	0,86	6,1	0,8	2,4	77	7500	89
H17R500-06	1250	990	145	264	96,5	0,86	6,8	0,8	2,5	81	7700	97
H17R560-06	1400	990	160	293	96,5	0,87	6,1	0,7	2,4	115	8800	90
H17R560-06	1600	990	183	333	96,7	0,87	6,1	0,8	2,5	124	9100	90

2 TO 6.6 kV (8 POLES)

Class H17R

Standard Design

Mounting IM B3 / Protection IP 55 / Cooling IC 411 / 50 Hz / 8 poles / Insulation class F / Heating class B / Ambient Temperature 40 °C

Type	Power kW	Speed min ⁻¹	Current 6 kV A	Current 3,3 kV A	Efficiency %	Power factor	Starting current I _A /I _N	Starting torque M _A /M _N	Max. torque M _K /M _N	Inertia J kgm ²	Weight kg	Noise level dB(A)
H17R355-08	160	740	22	39	94,2	0,76	5,4	0,8	2,3	15	3400	78
H17R355-08	185	740	25	45	94,3	0,76	5,4	0,8	2,3	16	3500	78
H17R355-08	200	740	26	48	94,5	0,77	5,5	0,8	2,4	19	3600	79
H17R355-08	220	740	29	52	94,7	0,78	5,5	0,9	2,4	20	3700	79
H17R355-08	250	740	32	58	94,9	0,79	5,5	0,9	2,4	24	2800	80
H17R400-08	280	740	36	65	95,0	0,79	5,6	0,9	2,4	28	4200	80
H17R400-08	315	740	40	73	95,0	0,80	5,6	0,9	2,4	30	4300	81
H17R400-08	355	740	45	82	95,1	0,80	5,6	0,9	2,5	32	4400	82
H17R400-08	400	740	50	91	95,2	0,81	5,5	0,9	2,5	34	4500	82
H17R450-08	450	740	56	102	95,6	0,81	5,3	0,9	2,5	38	5000	83
H17R450-08	500	740	62	113	95,8	0,81	5,4	0,9	2,5	40	5200	83
H17R450-08	560	740	69	126	96,0	0,81	5,5	0,8	2,5	43	5500	84
H17R450-08	630	740	77	140	96,2	0,82	5,5	0,8	2,5	44	5700	84
H17R500-08	710	740	87	157	96,2	0,82	5,4	0,8	2,4	58	6600	84
H17R500-08	800	740	96	175	96,2	0,83	5,4	0,8	2,5	67	6800	85
H17R500-08	900	740	108	197	96,3	0,83	5,4	0,8	2,5	74	7000	85
H17R560-08	1000	740	120	218	96,6	0,83	5,4	0,9	2,5	126	8200	86
H17R560-08	1120	740	134	244	96,7	0,83	5,5	1,0	2,5	130	8400	86
H17R560-08	1125	740	150	272	96,8	0,83	5,5	1,0	2,6	148	8600	87

10 TO 13.8 kV

Class H17R

Maximum output per frame size at 50 Hz.

Outputs for frame size 450, smaller than the ones shown below are available upon request.

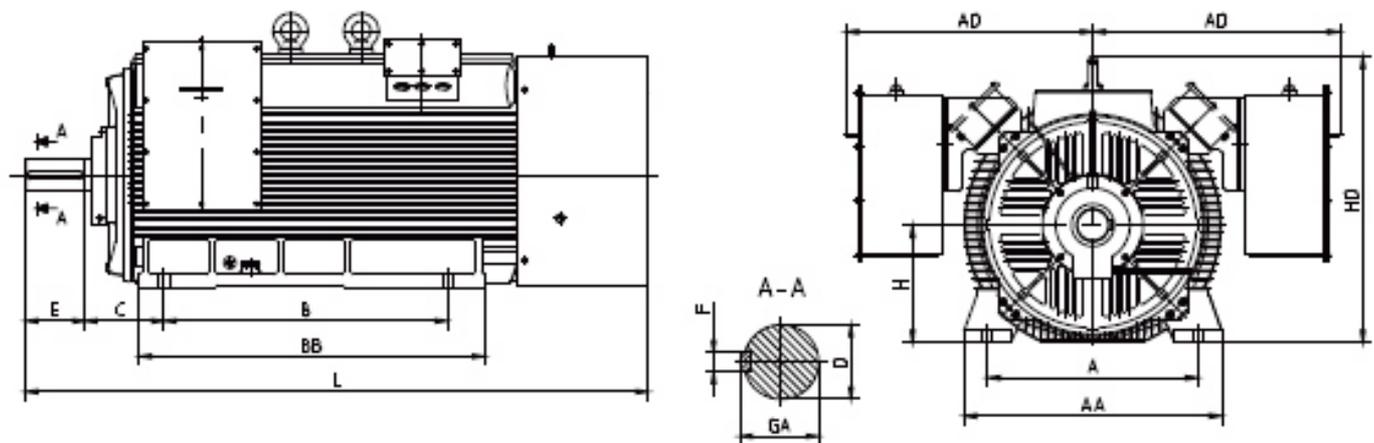
Velikost rámu	2 póly	4 póly	6 póly	8 póly
mm	kW	kW	kW	kW
450	900	900	630	450
500	1250	1250	1000	710
560	1600	1600	1400	900



Výkres rozmerov

Dimension drawing

Velkosť rámu	póly	A	B	C	D	E	F	H	L	AA	BB	HD	AD	GA
315	2	560	800	216	70	140	20	315	2000	680	1080	775	765	74,5
315	4-6	560	800	216	90	170	25	315	2000	680	1080	775	765	95
355	2	630	900	254	75	140	20	355	2100	760	1140	895	790	79,5
355	4-8	630	900	254	100	210	28	355	2100	760	1140	895	790	106
400	2	710	1000	280	85	170	22	400	2200	870	1220	980	840	90
400	4-8	710	1000	280	120	210	32	400	2200	870	1220	980	840	127
450	2	800	1120	280	95	170	25	450	2500	980	1495	1140	890	100
450	4-8	800	1120	280	130	250	32	450	2500	980	1495	1140	890	137
500	4-8	900	1250	315	140	250	36	500	2800	1080	1600	1200	920	148
560	4-8	1000	1400	355	160	300	40	560	2900	1180	1680	1400	990	169

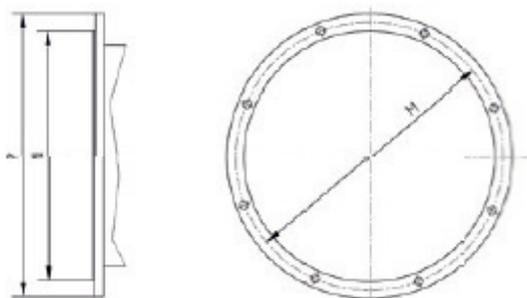


NOTE

Upon request, we will gladly send you detailed technical information and exact dimension drawings.

FLANGES

Custom configurations available upon request.



Warrants and certificates



OPRÁVNENIE

Evidenčné číslo: **093/3/2015 - EZ - O(O,U,R,M) - E1 - A,B**

Vydané Technickou inspekciou, a.s., Trnavská cesta 56, 821 01 Bratislava, podľa § 14 ods. 1, písm. a) a § 15 ods. 4 zákona č. 124/2006 Z. z. o bezpečnosti a ochrane zdravia pri práci a zmenách a doplnení niektorých zákonov v znení neskorších predpisov na základe odborného stanoviska č. 2707/3/2015-01 z preverenia odbornej spôsobilosti zamestnávateľa

Názov a sídlo: **VYBO Electric, s.r.o.**
Tehelná 2230/6, 052 01 Spišská Nová Ves

IČO: **45 537 143**

Na druh činnosti:

- O** Oprava vyhradených technických zariadení elektrických v rozsahu:
- O1** oprava a održba
- R** rekonštrukcia
- M** montáž do funkčného celku na mieste budúcej prevádzky

V rozsahu:

- E1** technické zariadenia elektrické bez obmedzenia napätia vrátane bleskozvodu

Triedy objektov:

- A** objekt bez nebezpečnosti výbuchu
- B** objekt s nebezpečnosťou výbuchu

Poznámka: Rozsah odbornej spôsobilosti - skupiny EZ na technické zariadenia do 22 kV

Dátum oprávnenia je pri činnosti podľa oprávnenia povinný dodržiavať podmienky uvedené v odbornom stanovisku č. 2707/3/- zo dňa 28.07.2015.

V Košiciach dňa **28.07.2015**



SOLUTIONS FOR INDUSTRY



OPRÁVNENIE

Evidenčné číslo: **094/3/2015 - EZ - V - E4 - A**

Vydané Technickou inspekciou, a.s., Trnavská cesta 56, 821 01 Bratislava, podľa normy STN EN ISO/IEC 71020 [01 5265] na základe odborného stanoviska č. 2707/3/2015-02 z preverenia odbornej spôsobilosti podnikateľa.

Názov a sídlo: **VYBO Electric, s.r.o.**
Tehelná 2230/6, 052 01 Spišská Nová Ves

IČO: **45 537 143**

Na druh činnosti:

- V** Výroba technických zariadení elektrických

V rozsahu:

- E4** elektrické stroje, prístroje, rozvádzače

Triedy objektov:

- A** objekt bez nebezpečnosti výbuchu

Poznámka: Elektrické zariadenia s napätím do 1000 V

Dátum oprávnenia je pri činnosti podľa oprávnenia povinný dodržiavať podmienky uvedené v odbornom stanovisku č. 2707/3/- zo dňa 28.07.2015.

V Košiciach dňa **28.07.2015**



SOLUTIONS FOR INDUSTRY

CERTIFIKÁT

O zavedení systému manažérstva kvality



VYBO Electric, s.r.o.
Tehelná 2230/6, 052 01 Spišská Nová Ves

PREDMET ČINNOSTI: Výroba, predaj elektromotorov; Výroba, predaj a programovanie frekvenčných meničov; Výroba a úpravy elektrických prevodových motorov; Výroba komplexných elektrických pohonov.

Má vybudovaný systém manažérstva kvality v súlade s modelom a požiadavkami medzinárodnej normy

ISO 9001:2008



SOLUTIONS FOR INDUSTRY

CERTIFIKÁT

O zavedení systému manažérstva bezpečnosti a ochrany zdravia pri práci



VYBO Electric, s.r.o.
Tehelná 2230/6, 052 01 Spišská Nová Ves

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Má vybudovaný systém manažérstva kvality v súlade s modelom a požiadavkami medzinárodnej normy

OHSAS 18001:2007



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CERTIFIKÁT

O zavedení systému environmentálneho manažérstva



VYBO Electric, s.r.o.
Tehelná 2230/6, 052 01 Spišská Nová Ves

PREDMET ČINNOSTI: Výroba, predaj elektromotorov; Výroba, predaj a programovanie frekvenčných meničov; Výroba a úpravy elektrických prevodových motorov; Výroba komplexných elektrických pohonov.

Má vybudovaný systém manažérstva kvality v súlade s modelom a požiadavkami medzinárodnej normy

ISO 14001:2004



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